

REMARKS

Claims 1, 16, 30, 44, and 67 are currently amended to correct minor typographical errors. No new matter is added.

Claims 1-92 and 100-120 are pending in the application. Claims 93-99 and 121 have been withdrawn. Thus, claims 1-92 and 100-120 are pending in the application.

NON-OBVIOUSNESS UNDER 35 U.S.C. §103(A)

The claims are not obvious because the cited reference(s) teaches away from and intended function would be destroyed under FCC conditions.

The Office Action rejected Claims 1-92 and 100-120 under 35 U.S.C. 103(a) as allegedly unpatentable over Vierheilig U.S. 6,028,023 ('023 reference) in view of Poirier (U.S. Patent 5,951,851).

Vierheilig '023 reference expressly discloses sorbing SO_x and specifically discloses a material for use in a FCC process comprising hydrotalcite-like compound (see Vierheilig, column 12, lines 15-27). Although the Office Action even admits that "Vierheilig '023 **does not disclose** using the hydrotalcite-like compound in an FCC catalyst to remove sulfur from petroleum." (page 4 Office Action), nonetheless, the Office Action alleges that "Poirier discloses using hydrotalcite to remove sulfur from hydrocarbon fluids (see Poirier column 2, line 64 – column 3, line 14)." Therefore, it would allegedly been "obvious to one having ordinary skill in the art at the time of the invention to modify the process of Vierheilig to include contacting hydrocarbon fluids with hydrotalcite in order to remove sulfur from the hydrocarbon fluids." (Page 4 Office Action)

To establish a prima facie case of obviousness, the MPEP explicitly *requires* the Examiner to demonstrate all the following three criteria. First, there *must* be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine to the reference teachings. Second, there *must* be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must* teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 -§ 2143.03 .

The test for non-obviousness is not whether it would be merely advantageous or possible to combine references, but whether the prior art suggests the motivation to combine the references. “[T]he mere fact that the references can be combined or modified does not make the resultant combination obvious unless the prior art suggests the desirability of the combination”. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990); See MPEP section 2143.01.

“The initial *burden is on the examiner* to provide some suggestion or motivation to modify” and a reasonable expectation of success. Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985); See MPEP § 2144 -§ 2144. The teaching or suggestion to make the modification and the reasonable expectation of success must both be found in the reference. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 -§ 2143.03. When the motivation to modify the teachings of the reference is not immediately apparent, it is the duty of the examiner to explain why the modification of the teaching is proper.

In this case, Applicants respectfully submit that independent claims 1, 16, 30, 44, 57, 77, 100 and 104 and the all the claims dependent thereon are not obvious because the Office Action fails to disclose various respective claim element, each undisclosed element of which independently refute the unsupported allegations of obviousness.

The Office Action fails to demonstrate a motivation to modify the ‘023 reference to reduce the concentration of sulfur in gasoline produced in an fluid catalytic cracking unit (FCC) unit in view of the Poirier reference. The Office Action merely alleged "it would have been obvious" to *modify* the ‘023 Vierheilg process to remove *sulfur* from gasoline in view of Poirier, without demonstrating why one of ordinary skill in the art would have allegedly been *motivated* to *modify* ‘023 reference in view of Poirier, which expressly and only discloses treating conditions at ambient or up to 35°C, as opposed to FCC condition:

“The treating conditions which may be used to carry out the present invention are conventional. Contacting the fluid to be treated is effected at ambient temperature conditions, although higher temperatures up to 35° C may be employed.” (Col 4 line 15)

In this case, the issue is not whether ‘023 reference may merely be modified with Poirier’s teaching of “treating conditions at ambient or up to 35°C”, but whether Poirier provides

any suggestion or motivation to modify “treating conditions at ambient or up to 35°C” and a reasonable expectation of success. Not only does Poirier fail to disclose reducing the concentration of sulfur in gasoline produced in an FCC unit, Poirier’s self limiting temperature of “treating conditions at ambient or up to 35° C” teaches away from reducing sulfur from an FCC unit treating condition, which is around 500°C, or from about 400°C to about 600°C as opposed to up to 35°C. (The temperature range of an FCC unit standard knowledge to one of ordinary skill in the art and disclosed in, but not limited to, U.S. Patent 4,071,436 and U.S. Patent 4,153,535). Such differences in temperature is not just a numeral difference in degrees, but a difference in kind and self limiting restriction by Poirier itself which teaches away from and or is inoperable under FCC conditions. Furthermore, references are not properly combinable or modifiable if their intended purpose is destroyed. (In Re Gordon, 733 F.2d. 900 Fed. Cir. 1984) In this case, Poirier fails to demonstrate a prima facie case because the suggested modification of reducing the concentration of sulfur in gasoline produced in an FCC unit (at 400°C to about 600°C) destroys the intended function of “treating conditions at ambient or up to 35°C.” Thus, the Office Action fails to demonstrate a motivation to modify the ‘023 reference to reduce the concentration of sulfur in gasoline produced in an FCC unit in view of Poirier.

Applicant respectfully submits that the rejection is overcome and independent claims 1, 16, 30, 44, 57, 77, 100 and 104 are not obvious. Applicant respectfully submits that as the current independent claims are allowable, the claims which depend from the independent claims are also allowable.




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Applicant respectfully requests that the Examiner consider the foregoing remarks, and allow the pending claims to issue. Applicant respectfully requests a telephone interview to help expedite the successful prosecution of the claims; applicant's undersigned attorney would be grateful for the opportunity to discuss any outstanding issues.

Respectfully submitted,

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